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EXAMINER

JEAN GILLES, JUDE

ART UNIT

PAPER NUMBER

2143

MAIL DATE

DELIVERY MODE

02/21/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/679,931

Applicant(s)

KANG ET AL.

Examiner

Jude J. Jean-Gilles

Art Unit

2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2007.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-3, 6-14, 17-32, 35-37 and 40-42 is/are rejected.  
7) ☒ Claim(s) 4, 5, 15, 16, 33, 34, 38 and 39 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 10/06/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This office action is responsive to the Reply files on 11/19/2007.

#### ***Response to Amendment***

1. No claims were amended. There are no newly added claims. Claims 1-42 are pending. Claims 1-42 represent a method and apparatus for "SYSTEM AND METHODS FOR ROBUST DISCOVERY OF SERVERS AND SERVICES IN A HETEROGENEOUS ENVIRONMENT."

#### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1, 7, 22, 25, and 40 have been carefully considered, but are not deemed fully persuasive. Applicant's arguments are deemed moot in view of the following new ground of rejection as explained here below

The dependent claims stand rejected as articulated in the First Office Action and all objections not addressed in Applicant's response are herein reiterated.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, 3, 6, 7, 9-12, 22-25, 27-30, and 40-42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al (Yoshida), Pub. No. 2003/0135613 A1 in view of Alkhatib et al (Alkhatib) U.S. Pub. No. 2004/0249974 A1.

Regarding **claim 1**, Yoshida discloses:

1. A system for discovering and identifying a server (see Yoshida; fig. 2), the system comprising:

a network comprising at least one domain, wherein at least one domain comprises at least one server; and a communication device (see Yoshida; item 43) comprising:

a server monitoring unit (see Yoshida; item 46, 47) operable for:

dynamically discovering at least one server on the network; monitoring at least one server on the network; and determining information associated with the monitored server items (see Yoshida; items 41, 46, 47; par. 0036-0041), wherein the information is used to connect to the monitored server after a network failure situation; and a potential server storage unit (see Yoshida; item 48) operable for: storing the information associated with the monitored server (see Yoshida; 41, 46, 47; par. 0036-0041).

In the Reply filed on 11/19/2007 applicants contend that Yoshida does not disclose dynamically discovering at least one server on the network, and that further Yoshida does not teach determining information associated with a monitored server. In Nonetheless, these features are well known and would have been obvious modifications to the system shown by Yoshida.

In an analogous art, Yoshida teaches a server that dynamically alter and discover domain information within storage networks (see Allen, par. 0030, 0035). Accordingly, it would have been obvious for an ordinary skill in the art to modify the system of Yoshida to incorporate the features of Allen for the purpose of dynamically identifying target nodes and addresses in case of system failure. By this rationale, claim 1 is rejected

Regarding **claim 2, 3, 6, 7, 9-12, 22-25, 27-30, and 40-42,**

2. The system of claim 1, wherein the communication device further comprises: a role inquiry storage unit adapted to store role inquiry data used to determine the role of the server, wherein the role inquiry data comprises information inquiries pertaining to identification of a plurality of server types (see Yoshida; items 46, 47).

3. The system of claim 2, wherein the potential server storage unit is further operable for receiving and storing potential server data used to identify potential servers, wherein the potential server data is received from a networking directory or from the server's response to the role inquiry data (see Yoshida; 0066-0072).

6. The system of claim 1, the system further comprising: a network operating system unit adapted to communicate with the network and the server monitoring unit, wherein the network operating system unit is adapted for: receiving the potential server data and the role inquiry data from the server monitoring unit; providing the potential server data and the role inquiry data to the potential server; receiving the additional information from

the potential server; and providing the additional information to the server monitoring unit (see Yoshida; 0036-0044).

7. A method for discovering a server in a network, the method comprising: dynamically discovering at least one server on a network; receiving a name of the at least one server on the network; filling in contact information associated with the at least one server; storing the contact information necessary for connecting to the at least one server; determining whether the network is functioning properly; and connecting to the at least one server, if the network is not functioning properly (see Yoshida; fig. 2, items 41, 43, 46, and 47, also see abstract; 0046-0044; see Allen, par. 0030, 0035).

9. The method of claim 7, wherein dynamically discovering at least one server comprises: generating a first list of enumerated domains through domain trust discovery; generating a second list of enumerated domains through directory partitions discovery; determining whether at least one domain was found in the first list of enumerated domains or the second list of enumerated domains; and generating a third list of enumerated domains through networking discovery, if no domain was found in the first list of enumerated domains or the second list of enumerated domains (I see Yoshida; t is the function of the server list manager 16 lists of servers, services, domains; see abstract; 0020-0026).

10. The method of claim 9, wherein dynamically discovering at least one server further

comprises: generating a first list of enumerated servers through directory object discovery for each enumerated domain; determining whether an error occurred during the directory object discovery; performing a first sequence if an error did not occur during the directory object discovery, the first sequence comprising: determining whether a server was found in the first list of servers; and generating a second list of enumerated servers through networking discovery, if no server was found in the first list of servers; and performing a second sequence if an error occurred during the directory object discovery, the second sequence comprising: generating a second list of enumerated servers through networking discovery (see Yoshida; see abstract; 0020-0026).

11. The method of claim 7, wherein filling in contact information associated with the at least one server further comprises: receiving a server name from a user; receiving a first domain name from the user, if the user provides the first domain name; querying a server associated with the server name for a second domain name, wherein the server belongs to a domain identified by the second domain name; determining whether the user provided the first domain name; verifying the first domain name, if it is determined that the first domain name was provided by the user; determining whether the user provided a server identifier name; and processing the server identifier name, if the server identifier name was provided by the user (see Yoshida; see abstract; 0020-0026).

12. The method of claim 11, wherein the method further comprises: determining whether an error occurred when querying the server identified by the server name for a second domain name; and terminating operation of the method if the determination is made that an error occurred (see Yoshida; 0020-0026; 0039, 0078).

22. A method for identifying a server in a network, the method comprising: designating a remote computer for determining a server role for the remote computer; selecting a role inquiry from a set of role inquiries; querying the remote computer with the role inquiry; receiving a response to the role inquiry from the remote computer; and attempting to determine a server role of the remote computer from the response (see Yoshida; 0066-0072; see Allen, par. 0030, 0035).

23. The method of claim 22, wherein the method further comprises: selecting a second role inquiry from a set of role inquiries, if the server role of the remote computer cannot be determined; querying the remote computer with the second role inquiry; receiving a second response to the second role inquiry from the remote computer; and determining server role of the remote computer from the second response (see Yoshida; 0066-0072).

24. The method of claim 22, wherein the attempt to determine a server role of the remote computer from the response is successful (see Yoshida; 0066-0072).



25. A computer-readable medium having computer-executable instructions for discovering a server in a network, the computer-executable instructions performing steps comprising: dynamically discovering at least one server on a network; receiving a name of the at least one server on the network; filling in contact information associated with the at least one server; storing the contact information necessary for connecting to the at least one server; determining whether the network is functioning properly; and connecting to the at least one server, if the network is not functioning properly (see Yoshida; 0066-0072; 0036-0044, and 0078; see Allen, par. 0030, 0035).

27. The computer-readable medium of claim 25, wherein dynamically discovering at least one server comprises: generating a first list of enumerated domains through domain trust discovery; generating a second list of enumerated domains through directory partitions discovery; determining whether at least one domain was found in the first list of enumerated domains or the second list of enumerated domains; and generating a third list of enumerated domains through networking discovery, if no domain was found in the first list of enumerated domains or the second list of enumerated domains (see Yoshida; see abstract; 0020-0026).

28. The computer-readable medium of claim 27, wherein dynamically discovering at least one server further comprises: generating a first list of enumerated servers through directory object discovery for each enumerated domain; determining whether an error occurred during the directory object discovery; performing a first sequence if an error

did not occur during the directory object discovery, the first sequence comprising: determining whether a server was found in the first list of servers; and generating a second list of enumerated servers through networking discovery, if no server was found in the first list of servers; and performing a second sequence if an error occurred during the directory object discovery, the second sequence comprising: generating a second list of enumerated servers through networking discovery (see Yoshida; 0066-0072; 0036-0044, and 0078).

29. The computer-readable medium of claim 25, wherein filling in contact information associated with the at least one server comprises: receiving a server name from a user; receiving a first domain name from the user, if the user provides the first domain name; querying a server associated with the server name for a second domain name, wherein the server belongs to a domain identified by the second domain name; determining whether the user provided the first domain name; verifying the first domain name, if it is determined that the first domain name was provided by the user; determining whether the user provided a server identifier name; and processing the server identifier name, if the server identifier name was provided by the user (see Yoshida; 0066-0072; 0036-0044, and 0078).

30. The computer-readable medium of claim 29, having further computer-executable instructions for performing the steps of: determining whether an error occurred when querying the server identified by the server name for a second domain name; and

terminating operation of the method if the determination is made that an error occurred (see Yoshida; 0021, 0039, and 0078).

40. A computer-readable medium having computer-executable instructions for identifying a server in a network, the computer-executable instructions performing steps comprising: designating a remote computer for determining a server role for the remote computer; selecting a role inquiry from a set of role inquiries; querying the remote computer with the role inquiry; receiving a response to the role inquiry from the remote computer; and attempting to determine a server role of the remote computer from the response (see Yoshida; fig. 2; see Allen, par. 0030, 0035).

41. The computer-readable medium of claim 40, wherein the method further comprises: selecting a second role inquiry from a set of role inquiries, if the server role of the remote computer cannot be determined; querying the remote computer with the second role inquiry; receiving a second response to the second role inquiry from the remote computer; and determining server role of the remote computer from the second response (see Yoshida; 0066-0072).

42. The computer-readable medium of claim 40, wherein the attempt to determine a server role of the remote computer from the response is successful (see Yoshida; 0066-0072).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 8, 13-14, 17-21, 26, 31, and 33-38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida and Allen, in further view of Alkhatib et al (Alkhatib) U.S. Pub. No. 2004/0249974 A1.

**Regarding claim 8:** Yoshida-Allen discloses the invention substantially as claimed. Yoshida teaches an the method of claim 7, wherein determining whether the network is functioning properly comprises: determining whether a domain name service (DNS) server is available by attempting to resolve a fully qualified domain name (FQDN) associated with the at least one server; and determining whether network basic input/output system (NetBIOS) traffic exists by attempting to resolve a NetBIOS name associated with the at least one server, wherein the network is functioning properly if the FQDN and the NetBIOS name resolve (see Yoshida; 0036, 0053, & 0057; see Allen, par. 0030, 0035). However, Yoshida-Allen does not disclose the details of resolving a DNS being specifically an FQDN in connection with the NetBIOS.

In the same field of endeavor, Alkhatib discloses "a DNS Response Packet that includes the following information: the target member FQDN; the target member virtual IP address; a source Route Director flag, the source member virtual IP address;

the target member join time; the target member agent version; the target member private IP address; the target Route Director public IP address; the target member NetBIOS name;... discovering if the network is functioning properly" [see Alkhatib;0030, 0131, 0178, 00228].

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Alkhatib's teachings of a DNS being specifically an FQDN in connection with the NetBIOS with the teachings of Yoshida-Allen, for the purpose of improving the ability of a network "...to *manage* devices within a network community through an unambiguous domain name that specifies the node's position in the DNS tree hierarchy in a absolute fashion as it is known to an ordinary skill in the art" . By this rationale, **claim 8** is rejected.

**Regarding claims 1314, 17-21, 26, 31, and 35-78, the combination  
Yoshida-Allen-Alkhatib:**

13. The method of claim 11, wherein the server identifier name is selected from a list comprising a NetBIOS name and a FQDN (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228)).

14. The method of claim 13, wherein verifying the first domain name comprises: determining whether the first domain name is the same as the second domain name; using the second domain name as a designated domain name if it is determined that the first domain name and the second domain name are not the same; using the first domain name as a designated domain name if it is

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determined that the first domain name and the second domain name are the same; and marking a flag that identifies the designated domain name as not validated (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228)).

15. The method of claim 14, wherein processing the NetBIOS name or FQDN comprises: using a network directory to search for a server identified by the NetBIOS name or the FQDN within a predetermined domain; determining whether the server identified by the NetBIOS name or FQDN was found in the predetermined domain; performing a first sequence if the server identified by the NetBIOS name or FQDN was not found in the predetermined domain, the first sequence comprising: determining whether the designated domain name is validated; and validating the designated domain name, if it is determined that the designated domain name was not validated; and performing a second sequence if the server identified by the NetBIOS name or FQDN was found in the predetermined domain, the second sequence comprising: storing the NetBIOS name as contact information, if the server was identified by the NetBIOS name; and storing the FQDN as contact information, if the server was identified by the FQDN (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).

16. The method of claim 15, wherein validating the designated domain name

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comprises: using DNS reverse lookup to find a correct name type; determining whether DNS reverse lookup found the correct name type; performing a third sequence if DNS reverse lookup did not find the correct name type, the third sequence comprising: designating the NetBIOS name as contact information, if the user provided the NetBIOS name; and designating a first label of the FQDN as contact information, if the user did not provide the NetBIOS name (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).

17. The method of claim 7, wherein storing the contact information necessary for connecting to the at least one server comprises: determining a valid internet protocol (IP) address for connecting to the server; sending an administrative network call to the server using the valid IP address; determining whether an error occurred when sending the administrative network call to the server; performing a first sequence if an error did not occur when sending the administrative network call to the server, the first sequence comprising: storing the valid IP address as contact information; and performing a second sequence if an error did occur when sending the administrative network call to the server, the second sequence comprising: determining whether a FQDN associated with the server is valid; storing a NetBIOS name associated with the server, if the FQDN is not valid; and storing the FQDN associated with the server, if the FQDN is valid (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131,

0178, 00228).

18. The method of claim 17, wherein determining whether a FQDN associated with the server is valid comprises determining whether the FQDN is non-null FQDN (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).

19. The method of claim 17, wherein determining a valid IP address comprises: determining whether the server has a non-null FQDN; determining whether the FQDN resolves properly, if the server has a non-null FQDN; and designating an IP address retrieved from resolving the FQDN as the valid IP address, if the FQDN resolves properly (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).

20. The method of claim 19, wherein determining a valid IP address further comprises: determining whether the server has a non-null NetBIOS name; determining whether the NetBIOS name resolves properly, if the server has a non-null NetBIOS name; and designating an IP address retrieved from resolving the NetBIOS name as the valid IP address, if the NetBIOS name resolves properly (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).



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21. The method of claim 20, wherein determining a valid IP address further comprises: determining if there is a cached IP address associated with the server; and designating the cached IP address as the valid IP address, if there the cached IP address associated with the server exists (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).

26. The computer-readable medium of claim 25, wherein determining whether the network is functioning properly comprises: determining whether a DNS server is available by attempting to resolve a FQDN associated with the at least one server; and determining whether NetBIOS traffic exists by attempting to resolve a NetBIOS name associated with the at least one server, wherein the network is functioning properly if the FQDN and the NetBIOS name resolve see (see Yoshida, 0066-0072; 0036-0044, and 0078; Alkhatib;0030, 0131, 0178, 00228).

31. The computer-readable medium of claim 29, wherein the server identifier name is selected from a list comprising a NetBIOS name and a FQDN (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).

32. The computer-readable medium of claim 31, wherein verifying the first domain name comprises: determining whether the first domain name is the same as the second domain name; using the second domain name as a designated

domain name if it is determined that the first domain name and the second domain name are not the same; using the first domain name as a designated domain name if it is determined that the first domain name and the second domain name are the same; and marking a flag that identifies the designated domain name as not validated (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).

35. The computer-readable medium of claim 25, wherein storing the contact information necessary for connecting to the at least one server comprises: determining a valid internet protocol (IP) address for connecting to the server; sending an administrative network call to the server using the valid IP address; determining whether an error occurred when sending the administrative network call to the server; performing a first sequence if an error did not occur when sending the administrative network call to the server, the first sequence comprising: storing the valid IP address as contact information; and performing a second sequence if an error did occur when sending the administrative network call to the server, the second sequence comprising: determining whether a FQDN associated with the server is valid; storing a NetBIOS name associated with the server, if the FQDN is not valid; and storing the FQDN associated with the server, if the FQDN is valid see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).

36. The computer-readable medium of claim 35, wherein determining whether a FQDN associated with the server is valid comprises determining whether the FQDN is non-null FQDN (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).

37. The computer-readable medium of claim 35, wherein determining a valid IP address comprises: determining whether the server has a non-null FQDN; determining whether the FQDN resolves properly, if the server has a non-null FQDN; and designating an IP address retrieved from resolving the FQDN as the valid IP address, if the FQDN resolves properly (see Yoshida, 0066-0072; 0036-0044, and 0078; see Alkhatib;0030, 0131, 0178, 00228).

***Allowable Subject Matter***

Claims 4-5, 15-16, 33-34, and 38-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

7. Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914. The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

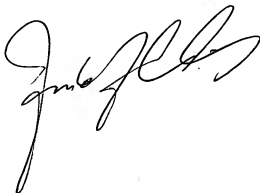
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn, can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is (571) 272-3201.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-0800.

Jude Jean-Gilles  
Patent Examiner  
Art Unit 2143

JJG

February 17, 2008

A handwritten signature in black ink, appearing to read 'Jude Jean-Gilles', is written over the printed name and date.